

THE ZOOLOGIST

No. 820.—October, 1909.

ROUGH NOTES ON THE FISH AND FISHERIES OF EAST SUFFOLK.

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(PLATE IV.)

For the following rough and random notes on the Fish and Fisheries of the North-eastern part of the County of Suffolk I offer no apology: their compilation has been to me an interesting task, gathered as were many of the facts on some very pleasant odd-day outings during my summer holidays of 1909. Some of these excursions will be noticed in the context. I have to thank several gentlemen for valuable help rendered me in piecing together the list of species, the first of its kind, I believe, for East Suffolk, and their names will be a sufficient guarantee for accuracy and veracity. Many of the rarer records have been gleaned from the pages of that excellent journal, the Norfolk and Norwich Naturalists' 'Transactions.' I frankly admit the crudeness of these "notes," but I hope they will form a nucleus for more elaborate and exhaustive work.

As the premier fishing-port of Suffolk, I take my bearings from Lowestoft, which, to quote from a Suffolk directory, "ranks next to Yarmouth among the most important fishing stations on the Eastern Coast, and is a handsome and rapidly improving market-town, bathing-place, and sea-port. It is pleasantly situated on the most easterly point of England, upon an

eminence, rising from the German Ocean, 11 miles E. by N. of Beccles, 7 miles S. of Yarmouth, 25 miles E.S.E. of Norwich, . . . and 114 miles N.E. of London."

Having said this for Lowestoft, I may make reference to the quiet, sleepy little town of Southwold, situated a few miles to the south of Lowestoft, itself a fishing centre, referred to in White's directory as "a creek under the port of Lowestoft," which at the present moment has shaken itself into sufficient wakefulness as to make promise of some development in its Herring-fishing ambitions. Southwold's long-delayed chances of improvement seem to have been taken advantage of in 1907, when the overcrowding of Yarmouth and Lowestoft harbours by fishing-boats from Scotland, and from other English ports, made a demand for further accommodation. Several of the boats ran into Southwold and landed their catches. In this incident certain energetic townsfolk saw their opportunity, and at once made effort to provide better harbour room, not without much pessimistic prophesying, tinged with fearfulness, on the part of the fishing interest at the premier Herring port.

In the course of 1908 quite a little muster of Herring-boats fished out of Southwold, which made the following number of landings, *viz.*: Scotch, 119; English, 177. From Mr. H. J. Sayers, a fish-merchant of Southwold, I learn that 1097 trunks of trawl-fish were landed there for the twelve months ending December, as well as 4452 crans of Herrings, and 122,250 hundreds of Mackerel, the bulk of these fishes arriving between September and December. He stated to me (July, 1909) that the harbour was being dredged to a depth of fifteen feet at low water, and that great preparations were then on the way to provide pickling-plots and gutting-sheds, while a considerable fleet of boats was expected in for the autumn fishing of 1909.

In August, 1906, the harbour was in a chaotic state, the piers worm-eaten and weather-worn, with notices here and there warning the stroller not to venture thereon; the bar at the river entrance was visible at low water. On Aug. 4th of the present year [1909], in company with Mr. Percival Westell, I revisited Southwold, and found its harbour and approaches undergoing quite a phenomenal metamorphosis; the ancient breakwaters had disappeared, and were replaced by modern structures; a



concrete quay-heading made, with piling extensions extending along the north side as far as Walberswick. New gutting-sheds had been built, and large areas of the original marsh and sand-dune levelled, raised, and in places concreted, in preparation for the Herring harvest. A Herring-mart, surrounded by some seventeen merchants' offices, stores, sheds—even a restaurant and a Scotch Girls' Rest—had cropped up; and there is a promise of great things in store for the resuscitated port. Nearly four hundred Scotch lasses are expected this coming season, with a corresponding number of male labourers and participators in the fishing. Mr. H. J. Sayers, who kindly piloted us round, speaks most optimistically of the future of the port. Yarmouth, Ramsgate, and Lowestoft boats have used the harbour with encouraging results.

That Yarmouth should see, in the development of Southwold, a menace to her prosperity as a Herring port is absurd; Yarmouth can still retain the lion's share, and if the local authority [without hindrance from the Commissioners, with the jealousy of Norwich behind them], instead of haggling and wasting money over law proceedings, would spend it for increased accommodation, a fishing of yet huger dimensions would ensue. There are plenty of Herring shoals off Southwold, in the latter part of the fishing especially. I have seen a "punt" bring in a fine autumnal catch of Herrings of a quality unsurpassed.

The old-worldness of Southwold, and its beach, notwithstanding the assumption of modernity in the matter of catering for visitors, is still an observable and interesting feature. The fishermen's storage huts remain on the south foreshore, with many quaint hints for the artist, and some eighty small fishing-boats, called "punts," fish from the beach, being hauled up into a north and a south contingent when operations are over in the bay, known as Sole Bay—a suggestive title. They are marked L. T. (port of Lowestoft), the dues being under that port's authority. Southwold has ambitions for a separate authority. These sturdy little "punters," of some twenty feet in length, are built much on the lines of a "gig"; they are fitted with a lug-foresail (without a boom) and a small mizen; the mizen-mast starts straight up from the stern-post. They sail well, but the foresail flaps ungracefully when luffing up into the wind. The

men in turn fish for Sprats with a drift-net, for Soles and other fish with a trawl; Shrimps are dredged for at other times.

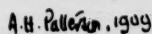
I can conceive of no more delightful an experience for an amateur fisherman, or an ardent student of marine zoology, than to ship aboard one of these little vessels and spend a fine summer's day trawling in the bay. I overhauled several of the recently returned boats, finding in the refuse among the billage quite a number of species of fish—Gobies, tiny Whittings, Bibs, Flounders, Pogges, Plaice, Soles, Suckers, &c., not to mention Sand-Stars, "Five Fingers," Swimming Crabs, Hermits, various Shells, *Alcyonium*, and even Sea-Anemones. On the sands around several of the boats, "stowed" already for the morrow's fishing, I saw heaps of "common objects" that would have delighted Gosse; but I considered the fishermen exceedingly wasteful, for many of the young Soles, Skate, and other flat fishes should have been returned to the sea.

I watched several of the fishermen measuring their catches of Soles on a piece of board notched to regulation length, those reaching a fishmonger's standard being placed in one heap and immediately gutted. I understood they obtained eighteenpence a pair for these, the smaller ones being retailed at proportionate prices by the men themselves. From forty to a hundred Soles did not seem to me to be a bad haphazard catch; but Southwold fishermen, like others, are sad grumblers, and bewail the departed glory of their offshore fishing. They may have reason, considering the waste referred to; they grumble also about the harbour, but several are beginning to use it. Among the catches I observed several Lobsters and Edible Crabs. I was severely bitten by a Swimming Crab (*Holsatus*), which has a most peevishly strong grip. My finger was inflamed for hours after, and I can quite sympathise with the fishermen's wholesome detestation of the species, which is abundant and extremely agile. I enumerated nineteen species of fish in my ramble round.

Anent the measuring of Soles, Mr. W. S. Everitt, of Lowestoft, related to me an amusing story of Frank Buckland's credulity, when visiting Lowestoft as a fish-commissioner:—

"I am delighted with your offshore fishermen," said the genial Buckland. "Why, I actually saw one fellow whom I

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went out with spreading Sole after Sole upon a thwart, occasionally throwing one overboard." "What are you up to?" asked Buckland. "See them snatches cut there?" asked the man; "well, them as don't touch 'em, nose and tail, goes overboard again!"

Mr. Everitt, with a smile, assured me that the wily fellows, who had wind of Buckland's enquiries, had cut these purposely for his edification. It was easy to obliterate the newness of the notches with a finger-print of grease or tar.

In a letter received later in August from Mr. R. J. Canova, he referred to "a considerable quantity of Salmon-Trout caught here in May and June, and in the autumn in draw-nets along the shore. The trawlers," he continues, "catch Brill in Sole Bay. . . . At this time of the year [August] you probably know that the alongshore boats are catching the finest Soles possible. . . . I do not know of a better place for good, well-fed Soles." This inshoreing of Soles takes place all along our eastern coasts in the warmer months, undoubtedly for the purposes of spawning. There are a number of suitable spawning-grounds, an old and intelligent trawler* assures me, as at Sizewell Bank and some other adjacent "spots." He told me an interesting incident of falling across a spawning resort for Soles near Palling (Norfolk). By accident he dropped his small trawl in "a likely spot," and brought up some fine examples packed with spawn, filling a fish-trunk with excellent fish, but some actually shed their full-ripe ova in the boat, so that the bottom-boards were covered and made slippery, and they had to mop them free of it. He and his two partners made preparations for another day's foray, highly elated, but they "didn't get a bloomin' Sole in the net." His opinion was that they "came to the day, shed their spawn, and wor gone!" I am astonished that this species should be so plentiful inshore, considering the constant pursuit of it. Buckland asserts that a Sole one pound in weight carries about 134,000 eggs.

Sprat-fishing at Southwold is pursued contemporary with that of Aldeburgh. From Mr. H. J. Sayers, of Southwold, who kindly replied to several questions submitted to him, I learn that the

* * Bob Colby; an interesting character figuring in two or three of my recently published books on the East Coast.

number of boats working out of that port in Sprat-time is about fifty. Fishing commences at the end of October, and lasts until the middle of December. Sprats, he assured me, realized from three shillings to eight shillings per bushel, but I might take the average at five shillings. An average catch of some fifty to sixty bushels was the take per boat, with average earnings of from £10 to £15; £20 was reckoned exceptional. None were sold last year for manure; a few were smoked, the majority being sent away fresh.

The ridge of sandhills on which Southwold is situated extends northwards to Gorleston cliffs, Lowestoft standing midway upon the highest portion of them; immediately below Lowestoft, at the northern extremity, a range of undulating sand-dunes slopes seaward into an intermixed shore of hard sand and shingle, without clay. The south beach is narrow, a mere ribbon of sand between sea-wall and sea, upon which the wintry breakers dash with furious onslaught, often severely damaging the foreshore, notwithstanding the bold fight made by the inhabitants who spend much money and ingenuity in groining and theorising. The harbour, with its basins, divides the town into two distinct portions. Immediately behind Lowestoft are the waters of Lake Lothing and the River Waveney, the latter of which "in ancient days sought its junction with the ocean through Lake Lothing, between Lowestoft and Kirkley. Its channel, which is proved to have been shallow by the discovery of fossil Elephants' teeth, . . . was open in Camden's time."*

It would be beside the mark to enter into details of the long fight between the sea and the shifting sands which makes up the earlier history of this now navigable waterway—its irruptions, inundations, and the like. One remarkable tide, in 1791, burst over the isthmus of sand, carrying away a bridge built at Mutford in 1760; "on this occasion the salt water flowed over every surrounding barrier, and forced the fishes into the adjoining fields, where they were found, weeks afterwards, sticking in the hedges."

These possibilities for good or evil at length suggested what has since turned out to be a successful compromise with nature. In 1814 a survey was made to ascertain "whether or not it was

* 'History of Suffolk,' by Rev. A. Suckling.

practicable to open a communication with the sea at Lowestoft"; in 1821 a report was published, estimating the cost at £87,000. Yarmouth, of course, opposed this scheme. Royal assent was given in 1827, and the scheme completed in 1833. Before entire completion the sea was admitted through the lock-gates:—"The salt water," says Suckling, "entered the lake with a strong under-current, the fresh water running out at the same time to the sea upon the surface. The fresh water of the lake was raised to the top by the eruption of the salt water beneath, and an immense quantity of yeast-like scum rose to the surface. . . . At a short distance from the lock next the lake there was a perceptible and clearly defined line where the salter water and fresh met. . . . Lake Lothing was thickly studded with the bodies of Pike, Carp, Perch, Bream, Roach, and Dace; multitudes were carried into the ocean, and strewn afterwards upon the beach, most of them having been bitten by Dog-fish, which abound in the bay. It is a singular fact that a Pike of about twenty pounds in weight was taken up dead near the Mutford end of the lake, and on opening it a Herring was found in it entire."

Here we have had shown in a limited area how the fauna of a locality can be eliminated or altered. Lake Lothing has been changed from a haunt of freshwater fishes into a receptacle for shoals from the sea. All beauty has been eradicated, and the place is, as Christopher Davies* tersely remarks, "at low water . . . as malodorous as the worst of Dutch canals."

That the deep sluggish waters of the Waveney did at one time run freely into the sea *below* old Lowestoft is an undoubted fact; the same changes which affected the broadland district, joining the little archipelago of islands to the mainland (thanks to silt from the rivers and drift-sand brought from the sea), had their effects upon Lothing-land. I have shown the general appearance of East Norfolk, including Lowestoft's position, at the time of the Romans, in a recent publication, to which the reader may refer.† The history of Lowestoft (Lestoffe, Laystoff, or, as it was anciently designated, Lothnwistoft, probably acquired its name from Lothbrog, the Danish noble, who inadvertently landed here in A.D. 864), owing to its contiguity to

* 'Norfolk Broads and Rivers,' published in the eighties.

† 'Wild Life on a Norfolk Estuary,' p. 2.

Yarmouth, is very much mixed up with the beginnings and development of the larger and busier Norfolk borough, more especially as their maritime pursuits are kindred, although Lowestoft must have been in existence while the very site of the former was still under the sea. Lowestoft fishermen undoubtedly plied their trade upon the adjacent waters long ere the Yarmouth fishermen spread their nets to dry upon the rising sand-dunes on which stands the Herring metropolis, and it is equally probable that the East Coast Herring-fishery, originating at Lowestoft, in some measure transferred itself to Yarmouth.

From the earliest times considerable rivalry, which often developed into active hostilities, characterized the progress of these two ambitious towns. Dutchmen added to the discord in trying to usurp the fishery to themselves, or at least to monopolise a goodly share of it.* Frequent appeals to the successive reigning monarchs were made to adjust matters: King John, Edward I., Edward III., Henry III., Richard II.—all had a finger in the debatable pie. Charles I. did not mend matters much, although in the Civil Wars, and while Yarmouth sided with Cromwell, Lowestoft was loyal to the unhappy, wrong-headed King. The history of Yarmouth is punctuated by accounts of these long wearisome quarrels with Lowestoft, while over sixty pages of small type does Gillingwater devote to them in his 'History.' On the concluding page of these sordid chronicles he brings the contentions down to Charles II.'s reign, and to a point where Lowestoft evidently scores: "Thus," he emphatically writes, "was the last effort of the Yarmouth men to monopolise the Herring-fishery totally frustrated, and the Lowestoft people have enjoyed the free exercise thereof without any interruption ever since." During the early part of Charles I.'s reign, Nashe wrote his celebrated 'Lenten Stuffe, or the Praise of the Red Herring.' Being a Lowestoft man, he naturally took sides in the controversy against Yarmouth, and it goes without saying that it was the Lowestoft Red Herring which inspired his muse. Swinden ('History of Yarmouth') characterizes it as nothing more than "a joke upon *our* staple—Red Herrings." It would

* I must refer the reader to Gillingwater's 'History of Lowestoft,' chap. iii., popular edition, published by Arthur Stebbings, 1897, Lowestoft.

be untrue to say that Yarmouth does not to this day look upon Lowestoft with a somewhat jealous eye.

Gillingwater's* account of the Herring Fishery, with a few alterations in details, and the description of the Herring curing, are pretty well descriptive of what occurs to-day :—

“The Herring season,” he says, “begins on the Eastern Coast of England about a fortnight before Michaelmas, and continues to Martinmas. The number of the boats annually employed at Lowestoft . . . from 1772 to 1781 was about 33, and the quantity of Herrings caught in each of those years was about 714 lasts, or 21 lasts to a boat, which makes the quantity of Herrings caught by the Lowestoft boats during that period to be 7140 lasts. These Herrings were sold, upon an average, at about £12 10s. per last, which makes the whole produce arising from the sale of the said fish to be £89,250.”

The number of boats employed in the Herring Fishery and the value of the season's catches continually fluctuated. After 1781 the boats decreased to eight in number, owing to the war with the Dutch and other countries. But more peaceful times saw satisfactory developments, and Lowestoft to-day has become a most formidable, albeit peaceful, rival to Yarmouth. In 1854 there were 32 fishing boats, in 1864 they had increased to 167. The autumnal Herring voyage in that year (1864) amounted to 4675 lasts.

Frank Buckland ('Fisheries Report,' 1875), when making special inquiries into the state of the East Coast fisheries, stated that, on the authority of a well-known Lowestoft fish-merchant, the spring Herring Fishery was then of great value to the Lowestoft people, upwards of one thousand men and boys being engaged in it, and a sum arising to £30,000 was put into circulation. He gives a table of statistics that covers a period of eight years, which is appended (p. 371) :—

He further stated that from eighty to ninety boats went out from Lowestoft and a number from Gorleston to catch these spring Herrings, and that a great quantity of them were sold to the Dutch and French fishermen as bait for their long lines to catch Halibut and Plaice. To my mind, that was all they were fit for, for the North Sea spring Herring is dry and taste-

* 'History of Lowestoft,' 1790.

less, differing in quality from its successor, the midsummer Herring, which waxes fat on Opossum Shrimps, *Gammaridae*, and other small crustaceans and copepods that abound in the North Sea during the warmer months.* The Herring then

HERRINGS CAUGHT AT LOWESTOFT.

Year.	Spring Herrings.	Midsummer Herrings.	Autumnal Herrings.
	Lasts.	Lasts.	Lasts.
1860	1,521	304	2,645
1861	793	261	3,613
1862	538	75	5,711
1863	1,044	17	5,226
1864	1,634	38	4,675
1873	1,887	54	10,973
1874	2,546	112	9,173
1875	1,064	106	—
			[Then not yet begun.]

makes the fattest and tastiest of bloaters, and are of a far more exquisite flavour than the fuller-roed and milted fishes of the late autumn.

In more recent times the number of boats has been hugely augmented, and the catches of correspondingly vaster proportions. In 1904 the total number of lasts taken during the twelve months was 27,174, as against Yarmouth's 40,091. The boats then fishing out of Lowestoft Harbour numbered 232 local vessels and 291 Scotch boats. In 1907 a further increase was noted; Yarmouth, with 220 local and 720 Scotch and other boats, captured 52,122 lasts, whilst Lowestoft reaped a very satisfactory harvest of 39,197 lasts (13,200 Herrings to the last), as the "take" of 251 Lowestoft boats and 413 Scotch and other vessels employed. It may be interesting to append the following returns of the separate months, which cover the spring, midsummer, and autumnal voyages. These and the return for 1908 are from Mr. T. J. Wigg's paper on the "Herring Fishery"

* From the stomach of a six-inch Herring, on April 13th, 1890, I took one hundred and forty-three Opossum Shrimps.

in the 'Transactions' of the Norfolk and Norwich Naturalists' Society:—

RETURN OF HERRINGS LANDED AT LOWESTOFT IN 1907.

Month.	Lasts.	Month.	Lasts.
January	—	Brought forward ...	1,277
February	—	July	37
March	34	August	28
April	979	September	75
May	100	October	15,602
June	164	November	18,579
	—	December	3,599
Carried forward ...	1,277		

Total 39,197 lasts.

RETURN OF HERRINGS LANDED AT LOWESTOFT IN 1908.

Month.	Lasts.	Month.	Lasts.
January	—	Brought forward ...	663
February	—	July	48
March	20	August	26
April	550	September	252
May	40	October	15,476
June	53	November	16,701
	—	December	2,084
Carried forward ...	663		

Total 35,250 lasts.

"Being arrived on the fishing-ground," says Gillingwater, "in the evening (the proper time for fishing), they shoot their nets, extending about 2200 yards in length and eight in depth, which, by the help of small casks, called 'bowls,' fastened on one side, at a distance of 44 yards from each other, cause the nets to swim in a position perpendicular to the surface of the water. If the quantity of fish caught in one night amounts to only a few thousands they are salted, and the vessels, if they have no better success, continue on the fishing-ground two or three nights longer, salting the fish as they are caught, till they have obtained a considerable quantity, when they bring them into the roads, where they are landed and lodged in the fish-houses. Sometimes when the quantity of fish is very small they will continue on the fishing-ground a week or ten days, but in general they bring in the fish every two or three days, and sometimes oftener, which frequently happens, and instances have been known where

a single boat has brought into the roads, at one time, twelve or fourteen lasts."

In these days of steam and feverish haste the boats, independent of winds and tides, hurry to the more convenient dock-quays, often laden to an inconvenient degree with a single night's catch.

The "spitting," hanging, and smoking of Herrings still goes on as formerly, but the bulk of the catches are nowadays merely gutted and packed in brine in barrels, the deft-fingered Scotch lasses in their hundreds and even thousands, as in Yarmouth, altering the whole complexion of the curing industry. The exports now consist principally of salted Herrings; the bulk of these go to the Baltic ports, Germany and Russia absorbing the greater proportion of them.

In the early days competition and trickery evidently occurred, and frauds were even practised in the packing of smoked Herrings; bad quality and meagre-sized fishes then went to the bottom of the barrel, a trick that the workman, I will warrant, was not wholly responsible for. A complaint was made to the Government in the days of Charles II., praying that this grievance might be redressed. The purport of this complaint showed that even the barrels' cubic inches were not always above suspicion. It was decreed: "That from and after the first day of August, 1664, no white or red herring of English catching shall be put up to sale in England, Wales, or towne of Berwick-upon-Tweed but shall be packed in lawful barrels or vessels, and what shall be well, truly, and justly laid and packed; and shall be of one time of taking, salting, saveing, or drying, and equally well packed in the midst, and every part of the barrel or vessel; and by a sworn packer," &c.

The oath was as follows:—"You shall well and truly doe, execute, and perform the office and duty of packer of herrings . . . so help me God."

In its palmiest days the Mackerel fishery at Lowestoft did not reach very large dimensions. "The principal advantages which the merchants receive from the fishery," as Gillingwater points out, "is that of employing the fishermen and keeping them at home for the Herring season, more than emolument to themselves." The same reasons were assigned by the Yarmouth

merchants for pursuing there what has ever been a more or less precarious business. The Mackerel season began in the middle of May, and continued until the end of June. This restless and wandering species was ever capricious; in fine, calm weather the catches were always poor, the fish swimming deeper in the sea, and it is probable that it was sufficiently cunning and alert to avoid the nets provided for its ensnaring. Rough, breezy weather, "*with plenty of colour in the water*,"* as an old Mackerel catcher described it, is always most favourable, rousing the fish from below, and bringing them to the surface within reach of the fatal meshes.

"Next morn they rose and set up every sail;

The wind was fair and blew a Mackerel gale."†

—Dryden.

Gillingwater presents us with a number of statistics respecting the Mackerel Fishery in what he terms "An Account of the Mackerel Fishery at Lowestoft from 1770 to 1785 inclusive." This appertains principally to the number of boats employed annually, and the amounts realized from the sale of the fish. I append a few of these dates, omitting several for the sake of brevity:—

Year.	Boats.	£	s.	d.
1770	26	2,401	2	2½
1772	33	3,179	5	1
1774	35	2,012	13	0
1776	30	1,595	17	8½
1778	21	1,295	19	1½
1780	20	1,559	3	10
1782	16 (average per	136	1	2
1784	20 (boat)	119	5	11½
1785 *	20	249	8	8½

[* Supposed to be the greatest Mackerel season ever known at Lowestoft.]

Gillingwater's "greatest season" was eclipsed in 1821, when the catches reached huge proportions. On June 30th sixteen Lowestoft boats caught Mackerel to the value of £5252, being an average of £328 per boat, and it was estimated that a sum of

* Most likely due to the presence of minute marine creatures upon which the Mackerel may be feeding.

† Dr. Johnson, in his 'Dictionary,' describes a Mackerel gale as "a strong breeze, such as is desired to bring Mackerel fresh to market." I prefer to take the generally accepted idea of a *stirring* wind.

£14,000 was realized by owners and men in the fisheries off the Suffolk coast on that one day.

Nall,* writing in 1866, states that "the Lowestoft catch a few years ago averaged about fifty lasts annually; latterly, from the unprofitable results of the venture, fewer boats have been engaged in it, the fishermen prosecuting in preference the spring and summer Herring fishery." At the time of writing he averred that the "Mackerel fare-ing" had almost died out. On his authority it may be stated that in 1854 twenty boats were engaged, earning £3460; 1855, six boats, earning £930; 1858, ten boats, earning £710; 1862, three boats, earning £27.

In those days the East Coast Mackerel were brought to the beach, a practice which was followed, I believe, at both ports until recent years; they were sold by private contract and by public auction. The markets for the fish were London and the principal towns in East Anglia. To London consignments were despatched in fast-sailing cutters then employed by the London fish-mongers. The introduction of railways and preservation by means of ice have tended to a wider transportation, and to more regular prices. The highest price on record for Mackerel occurred in May, 1807, when the first boat-load from Brighton realized forty guineas per hundred of six score—seven shillings each! In the following year Mackerel struck the neighbourhood of Dover so plentifully that they were sold at sixty for a shilling.

Frank Buckland brings down the history of the "Fare-ing" to a more recent date. "In former years," he says, "Mackerel realized a large price; now the merchants have to compete with very fine fish caught off the Irish coast, . . . and also with immense numbers from Norway. These are packed in ice." . . . Similar conditions prevail to-day, and it is a curious fact that, for a number of years following Buckland's inquiries, the local fishery was hardly worth pursuing, the Mackerel changing their immigration until the time of the autumnal Herring-fishing, when on some occasions they became so abundant that several Yarmouth and Lowestoft boats changed their Herring-nets for Mackerel-nets.

* 'Great Yarmouth and Lowestoft,' by John Greaves Nall.

A few items selected from Buckland's Report are appended :—

Year.	Hundreds caught (120 in each hundred).	Total amount realized.
		£ s. d.
1864.....	525	66 5 0
1866.....	2,367	2,598 15 0
1868.....	4,124	5,155 0 0
1870.....	6,612	8,265 0 0
1872.....	3,334	4,167 0 0
1874.....	3,147	3,933 15 0

To Mr. H. J. Henderson, the present Harbour Master at Lowestoft, I am indebted for the past two years' records :—

MACKEREL FISHING, 1908-9.

Month.	Mackerel landed.		Equal to	Number of Boats.
	1908.	1909.		
	Hundreds	Hundreds		
April	22	13	1908,	1908,
May	6,802	4,502	202 lasts.	49 boats.
June	13,344	15,484	1909,	1909,
To July 11th	94	537	205 lasts.	54 boats.
Total	20,262	20,536	407 lasts.	—

The average price for each year would be about nine shillings per hundred of one hundred and twenty fish.

Against the above, the Wharf Master's figures, at Yarmouth, are as follows :—

From April 1st, 1908, to March 31st, 1909 : Boats, 45 ; lasts, 239 = 1,390,000 fish.

From April 1st, 1909, to August 20th, 1909 : Boats, 47 ; lasts, 256 = 1,560,000 fish.

The capricious movements of the Mackerel have already been hinted at ; they seem to come as they like, and stay away when the humour seizes them. I am satisfied that these apparent eccentricities are entirely due to tidal and other influences, which

affect the natural economy of the species. Mr. W. A. Dutt* gives a graphic account of a glut of Mackerel at Lowestoft in the winter of 1897, an unusual time of the year for such an occurrence:—"In the winter of 1897," he writes, "when the Mackerel season was at its busiest, almost unprecedented catches of fish were landed on the wharves. Soon after dawn during those winter days the drifters [Herring?] came sailing in, and often by ten o'clock in the morning the Waveney Dock was so full of boats that the fish had to be heaped on the trawl-market. And still the heavily laden craft kept crowding in, until there was hardly a pier or jetty that had not a score of boats alongside. Day after day similar scenes were witnessed. . . . So close to the shore were the Mackerel shoals that the drifters were in port in little more than an hour after they had hauled in their nets, and then it was often hours before the catches were landed. . . . In early spring many of the Lowestoft boats . . . join the Cornish boats engaged in Mackerel fishing off Land's End and the Scilly Isles."

I am not prepared here to enter largely into the matter of temperatures of the German Ocean, which vary in successive years; but temperature and the varying strength of the tides undoubtedly greatly govern the peregrinations of all marine creatures, and an abundance of food naturally controls the movements of those creatures which prey upon it. The spring and summer of 1906 were exceedingly interesting to me by reason of the many species of crustaceans and fishes that came to hand. My note-book for that year was crowded with "instances" and "finds." Herring-syle and the smaller crustaceans were legion. The autumn saw many rare ichthyological visitors on our shores; among these was the rare *Scomber thunnina*, hitherto unrecorded for British waters. Off Lowestoft were captured two Thresher Sharks (in September), and another off Yarmouth. Unusually big tides set in on a north-west wind on the springs—a rather abnormal circumstance—and I noted an invasion of Sprats early in October. Probably these causes contributed to a great influx of Mackerel off the East Coast in May, 1906. The 'Yarmouth Mercury' of May 26th thus refers to this:—"A good many years ago the East Coast Mackerel

* Vide 'Highways, Byways, and Waterways of East Anglia,' p. 135.
Zool. 4th ser. vol. XIII., October, 1909.

fishing was one of Yarmouth's most important industries. . . . Suddenly the Mackerel left the neighbourhood, but in time they appeared in abundance off Cornwall. . . . For the last two seasons, however [the local boats which followed them to Cornish waters], they have been anything but successful. Again the centre of interest shifts. As unexpectedly as the dandies of the British Seas left one of their old haunts, as unexpectedly have they reappeared in their legions a few miles from Yarmouth. Getting well among them, . . . Saturday [May 19th] was a record day. Upwards of forty boats arrived with good catches, some having as many as a last [12,000 fish]. . . . Should it transpire that the Mackerel have returned for good in anything like their old numbers, it will be a great boon to Yarmouth and Lowestoft."

The references to caprice and unusual appearances and disappearances call to mind a remarkable inshoreing of this species in November, 1875, when the Harbour Master of Lowestoft wrote Mr. T. Southwell that a large number had been taken at that late season of the year. He remarked:—"The large quantity landed at our market this autumn is a very unusual thing, as they are only caught on this coast in May and June."

A similar abundance was recorded by myself in 'The Zoologist,'* when immense shoals struck the Suffolk coast. On Nov. 12th a glut occurred at Lowestoft; several boat owners hurriedly changed their Herring-nets for Mackerel-nets. The drifter 'Nugget' landed just four lasts, or nearly 50,000 fish. The nets were so full that one-half could not be stowed in the net-room; "the remainder, still 'gilled,' lay in a huge heap piled on the deck." In some cases nets "grounded" (sank) with the weight of fish.

There were formerly two other fisheries pursued from the East Coast ports, known as the North Sea and the Iceland Fisheries. These flourished more especially in the middle of the seventeenth century. Swinden says that, in 1644, Yarmouth sent 205 vessels, 182 going to the former, and 23 pursuing the latter. These, however, being greatly harassed by foreign foes and kingly rapacity—for the king made raids, or exacted heavy tolls (the same thing!) upon the catches for provisioning his

* *Vide* 'Zoologist,' 1908, pp. 448-9.

fleets—gradually declined, and were never afterwards revived. Lowestoft had annually sent thirty boats; in 1720 they were reduced to five. Mr. Copping, an eminent Lowestoft merchant, sent the last boat from this port to the North Sea in 1748. Cod and Ling (which proves the fishery to have been a line fishery) were the principal catches; in a good season the boats would return with four hundred for each craft.

These fishes were cured by pickling them in casks; some were dry salted. They were afterwards despatched to foreign ports. "The livers were a considerable article," says Gillingwater, "and there is a trench still visible upon the Denes, a little to the north of Lowestoft, where stood the coppers where they used to boil the livers."

The trawl fishery has of late years become of considerable importance to Lowestoft, thanks greatly to the fostering influences of railway patronage. In plain words, Lowestoft owes much more to the enterprise of the Great Eastern Railway Company than to the original energy of its own inhabitants. I cannot get much information with regard to the beginnings of the trawling industry in this port. At a meeting of the Royal Commission (inquiring into the East Coast Fisheries in 1863), which was convened at Lowestoft in the November of that year, Mr. J. Robertson, then Collector of Customs, in giving evidence, stated that at that moment the Herring and Mackerel boats numbered 176, with "*eight* smacks employed in the trawling only." At that time Yarmouth had a fleet of some 150 smacks, which had increased to 400 sail in 1875. In a few years Lowestoft shot ahead. To-day the number of trawlers fishing from Lowestoft is some 300 vessels, whilst those from the port of Yarmouth are less than the number of fingers on one's hand!

I have heard it stated that Lowestoft's "start" dated from the advent there of Sir Morton Peto, after his rebuff at Yarmouth, whose development he had greatly desired, as well as certain political honours for himself. At any rate, to his enterprise and liberality in promoting docks and railway connections with the Great Eastern Railway, supplemented by the helping hand of the Company itself, Lowestoft owes much—indeed, most of its present-day prosperity.*

* For account of harbour developments, see White's 'Directory.'

The Fish-markets are situated exceedingly near to the sea. The three "basins" or docks are fairly commodious, and the wharves convenient, but the outlet to the sea is all too narrow. On certain winds, or when a rush of boats takes place, the harbour is not easy to negotiate either in or out. The Herring and Mackerel markets and the Trawl market are distinct. Most of the business in the latter takes place in the morning, whilst the Herring markets, deserted at other periods of the year, present an indescribably busy scene from early morning until late into the night during the Herring fishery. The Trawl market is carried on all through the year.

There had been a spell of fine calm weather early in August (1909); on the 11th and 12th very few smacks had landed but small catches. Prices ruled high. It was reported in a local paper that a record price had been made in Yarmouth on the 11th. The one solitary smack that came into the harbour had landed some Plaice. One "trunk" (of eight or nine stone) had realized £3 10s. This had been eclipsed by Lowestoft, a "trunk" of Plaice having gone as high as £3 14s.

I was extremely fortunate, on the 13th, in seeing no fewer than one hundred Lowestoft and other smacks in the trawlers' basin at that port, the whole area being covered by a fleet of these beautiful yacht-like craft (fifty or sixty tonners). I had left Yarmouth by an early train, with several Yarmouth fish-buyers, with their tubs, who had gone over with me to the fish-market, which presented a unique spectacle. Before nine o'clock there had been spread hundreds of "trunks" of Plaice, "Roker," Brill, Dabs, "Lemon Soles" (Smeared Dabs), Whittings, Haddocks, Codlings; huge Turbots and Cods, Congers and heaps of offal (small Red Gurnards, undersized Dabs, Plaice, &c.) lay in heaps at odd corners. There rumbled, hither and thither, huge springless trollies and sack-barrows over the uneven slime-splashed concrete, emptied, or piled with "trunks" of fish, to and from the smacks, each trundled by one or two gaunt, daring, uncouth smacksmen. Then above this uproar and the riot of voices rang the ear-splitting clanging of auctioneers' bells, and the stentorian bellowing of hoarse-throated salesmen, who yelled "This way Haddock buyers!" "Now you Sole buyers!" and "This way Roker!" There would be an excited crowd

winking and nodding to a shouting auctioneer, whilst another would be shrieking his wares to an audience of four ! There was a glut—it was Friday, too, and the boats that had been held back for days had come in pell-mell on the first advantageous shift of wind. Visitors thronged to see the strange scene, and those who were slow to move got mixed up sadly with trunks and fish and barrows. I confess that I had to lay my ear close to catch the purport of the fish-salesmen's clamorous bellowing, and had frequently to ask some bystander what the selling prices closed at. The following prices, as showing the differences attendant upon a "glut" or "famine," may be interesting :—

Aug. 11th. Per trunk.	Aug. 13th. Per trunk.
Plaice £3 14s.	£1 15s. to 18/-
"Roker"... 28/- to 30/-	(Price I could not catch)*
Soles..... £12 to £13	£3 8s.
Whitings..... 17/-	6/- to 4/-
Dabs 18/-	4/-, 8/-, 12/-
"Lemon Soles" (fine) ...	18/-

The fluctuations in prices shown on the 13th are to be accounted for by the differences in size and quality, as well as fewer buyers as the time passed on. I was by no means impressed by the general run of the fish ; many of the "Roker" (Thornback Rays) were no larger than dinner-plates, Codlings ran to about a pound in weight, Whitings were undersized, and many others were by no means "prime" fish. A fair-sized John Dory (*Zeus faber*) was the only fish that might be termed curious. One had need go to the wharf day by day, as Mr. Southwell did in 1901,† to see "strangers" thrown down upon the pavements, *e.g.* Porbeagles, Sting Rays, Sturgeon, Torpedo Rays, &c. There was nothing beyond the common-place market fishes—not a Crab, Lobster, Whelk, Squid, or Porpoise. From what information I gathered the smacks had been scraping about in the home waters of the North Sea, certainly not beyond Cromer Knowle; and I also noticed more than one ominous shake of the head when I asked if these smacks were paying. If steam-trawlers should put into Lowestoft the sailing craft might at once cease to trawl. I am not alone in believing so. The

* There were very few full boxes of Roker.

† *Vide* 'Zoologist.'

trend of the fishing is northward—ever northward. Yarmouth has lost its trawling industry; I somehow fear that Lowestoft will some day follow suit. How can they long compete against the northern ports which send their ever-restless steam-fleets to the Iceland waters and the far-away north White Sea?

It was with some degree of relief that I left the Trawl-market for the quieter Herring basin, into which only a few shrimpers were sailing to sort over their catches of the morning.* These consisted mainly of Sand Shrimps (*Crangon vulgaris*) of a goodly size, among which were many small Jelly-fishes (*Cydidippe pileus*), and not a little red seaweed. I noticed they did not pick the weed from the Shrimps, but shook out the crustaceans from the weed! I had armed myself with several packets of tobacco, and was speedily on more than speaking terms with the shrimpers, whose boats I boarded, and whose catches I overhauled. I was not a little astonished to find but a half-dozen "Pink Shrimps" (*Pandalus annulicornis*)—the Æsop's Prawn.

"Pink 'uns," said one fisherman, "won't sell at Lowestoft; they want brown 'uns!" which is the reverse of Yarmouth. They therefore fish on sandier bottom, avoiding the "rough" (*Sabellæ*) grounds. And whereas some of the Yarmouth catches have been as high as twenty pecks for a tide, not one of these boasted a catch of more than three pecks, and they seemed well content at that. In one boat I saw several Soles; the best of these were purchased by a fishmonger. These men seem to have regular buyers, and then dispose of the smaller fish privately.

I was not impressed by the variety of the "captures" taken with the Shrimps. In one boat was a fine Sprat (*Clupea sprattus*). Among other refuse I "noted" the Lesser Weever, Piked Dog-fish, Skulpins, small Bibs, Whitings, and Herring-syle, not to mention a number of Pipe-fishes (*Syngnathus acus*), Yellow Gobies (*Gobius auratus*), very small Dabs, Soles, Spotted and Thornback Rays, Flounders, Pogges, and a few Little Squids (*Loligo rondeletti*) and a *L. media*. I saw a few Swimming Crabs, and two beautiful examples of *Portumnus variegatus*.

* A fortnight later (Aug. 30th) this basin was crowded with freshly painted Herring-drifters, all high-busy getting nets and stores aboard for the autumnal Herring fishing.

A few boats were of the Yarmouth build and rig—broad-beamed, cutter-rigged; others were of the Southwold and Aldeburgh “punt” type, and a few of a nondescript order, one being a queerly metamorphosed yacht—some twenty-five to thirty in all. The men were not enamoured of the “rough ground” north of Lowestoft, so favourite with Yarmouth men.*

On the piers, like so many Cormorants looking for prey, sat perched in various attitudes some two hundred Atherine anglers, seeking “Sand Smelts.” One old gentleman, of philosophic appearance, armed with a light rod and a crow-quill, pulled out forty silvery-sided beauties in about an hour. These small fish anglers were still in evidence on the 30th, catching greater or lesser numbers. The Shrimp-boats had all been moored when I arrived at their quarters, and the men gone home with their catches. The retreating tide had left on the shore at the east side numbers of creatures thrown out as refuse; among them many Sand-stars (*Ophiocoma rosula*) and empty valves of the *Macra stultorum* (the Radiated Trough-shell). I saw a *Pholas*, numerous small Whittings, and a host of three-inch Bibs.

“Them little pouts,” [Bibs] said an old salt, “die suner ’an any fish livin’; they fare to blow up and float dade directly they come out of the water. There’s lots of big ’uns come off there [indicating Lowestoft Ness] later on, and perwide good fishin’.” “You have no draw-netting at Lowestoft?” I queried. “No—none; there’s too many groynes,” he answered. “Any Smelt-ing?” “No, sir, if you mean ‘Cucumbers,’ but they catch a few in the basins ’long wi’ them silver-sided ones.”

From another interesting fellow I gathered that some sixteen Lowestoft boats engage in the November Sprat fishing, while carts from Kessingland and Southwold run up to the Lowestoft market with Sprats, and the boats from those places occasionally run in with their catches. He himself had Eel-pots in the basins. I was accosted by a young fellow, on leaving the Herring basin, who offered me some fine Flounders at a shilling per dozen. He had taken them, with some Eels, in the basin in a folding hoop-net.

On leaving the wharves I strolled around the older part of Lowestoft, situated below the cliff, taking note of the fishing premises, which do not seem of that roomy and important size

* *Vide* ‘Nature in Eastern Norfolk,’ p. 101.

one is used to at Yarmouth. The sandy dunes were being levelled (on the 30th), and prepared for the use of the Scotch girls, whose numbers are increasing each fishing season.

The most interesting trip during my holiday investigations was to Aldeburgh, on Sept. 1st. There were but few visitors on the stony beach, at the foot of whose steep incline the sea-waves have eternally rattled the rounded pebbles. There seemed in the everlasting rattle the sobbing of some disappointed great Evil Spirit. The boats were out a-trawling, Soles above all else their quest, and they would not be home till noon. So I tramped along the apex of that unbound shingly rampart—scrunch, scrunch—to Slaughden, a tiny hamlet a mile from the town.

How far its roots went down in the stone-heap I could not say, but there flourished with great grey-green leaf-tufts the yellow-horned poppy (*Glacium flavum*), a most delightful seaside wild flower; sorrel and coarse thistles grew sparsely; *Brassica oleraceæ*, *Salsola kale*, *Crambe maritima*, *Vicia lutea*, and some other shore-plants that I did not recognise, cropped up here and there. The only birds I saw were a few grey Gulls. There was not a Tern in evidence, and this, too, where there was, but three or four years since, a well-protected colony!*

At Slaughden I made the acquaintance of an entertaining old man of the sea, a Mr. Chatton, of charming personality, a boat-builder, shipwright, eel-catcher, sea-angler, and spratter in turn. From him I gathered that there were from twenty-five to thirty Sprat-boats at Aldeburgh, carrying three, sometimes four, and rarely but two hands. The boats were "punts" of about twenty feet. A "fleet" of nets carried by a spratter was composed of thirty nets, that spread a full half-mile, of small mesh, and three fathoms deep. They had no deadly stow-nets on that coast, which killed the fry of every kind of fish. The Sprat Fishery was on from the end of October until late in December, sometimes till Christmas-time, and on rare occasions Sprats were taken early in the spring. Sprats were uncertain, like Mackerel. Their presence could be detected; even if a bit windy the sea where they were would be like glass, and oily in appearance [as I have seen water in which Herrings had shoaled];

* Cf. the destruction of Terns in 'Wild Life on a Norfolk Estuary,' pp. 273-278.

sometimes they gave the water the appearance of being ruffled by the wind. "Did the sea-birds trouble them?" He assured me that the Gulls were a great nuisance; they seized on the nets and pulled them out of the water, shaking out the Sprats. Those that "worked" and those that looked on quarrelled over the spoil, to the spratter's disgust. The "Willows" (Guillemots and Razorbills) did not interfere with the nets, but dived in among the shoals, as did the Red-throated Divers. Occasionally *they* got fast in the meshes and were drowned.

Sprats were sold by the bushel; they were sent to London in boxes; from ten shillings to twelve shillings a bushel was a good price at the beginning of the season, which went down to four shillings and five shillings towards the latter part of it. A good catch was from forty to fifty bushels, and as much as a boat could well carry. The boats used years ago to shoot a number of bushels each into a yawl and send it to Yarmouth—this was thirty years since, but it paid better now to send the bulk to London. There were none sold off this coast, under ordinary conditions, for manure.

From him I gathered that Grey Mullet were plentiful at times in the estuary of the Alde; Bass were numerous also, and afforded great sport to sea-anglers. Smelts were netted, and Eels trawled for at night; there was fine sport sometimes in winter *pritching* for Eels.

Hanging in Chatton's boat-shed were three or four "pritches," a kind of Eel-spear, made of thin iron rod scarcely stouter than bicycle-spokes, spread like the fingers of one's hand, each point being sharp and upturned. The shaft is long and extremely light, the whole apparatus weighing about $2\frac{1}{2}$ lb., whereas a Norfolk "Eel-pick" weighs 7 lb. The "pritch" is said to have the advantage of not cutting the Eel, which often happens with the spear. . . .

At noon the boats returned; they came in on the beginning of the ebb-tide, and negotiated the steep, awkward beach with extreme care, coming straight on, carefully avoiding a broadside, which would not only be very dangerous in anything like a rough sea, but difficult to right. Two or three active fellows were in waiting at each landing with "skids," long flat spars with an iron facing, which were thrust under the stout billage-streaks of

the boats to prevent them sinking in the yielding shingle. A rope was speedily attached to the keel, and the boat heaved by a sturdy winch over the high angle of shingle on to the beach.

I noticed but few species of fish in the boats, the catches evidently being sorted when the trawl is hauled. A bag-net which averaged enough Soles to fill a bucket was invariably thrown ashore from each boat; these after being rinsed in the sea were immediately gutted on the beach. Some "Roker," Blue Skate, Spotted Ray, and Plaice of small size, with a couple of large Edible Crabs and a Lobster were all the other species noted. A few Sand-stars and some broken *Sabellæ* told of the nature of the ground "worked." The men were exceedingly courteous and communicative. The boats are marked I. H. (Port of Ipswich). I roughly paced the trawl-beams at from eighteen feet to twenty feet. The beach is woefully lumbered up with old gear, winches, boxes, broken Crab-pots, &c.

There attaches some considerable interest to the chequered histories of these East Suffolk fishing towns, figuring as they did largely on the panorama of the ages; but too much room cannot be given to a survey of them, however brief. A very condensed and succinct account of the past and successive fisheries of Lowestoft, Southwold, Dunwich, and Aldeburgh, full of curious phrasing, is given by Miss E. M. Hewett in the 'Victorian History of Suffolk,' vol. ii., in a chronologically arranged manner. I venture to quote from two short items in Hele's 'Notes about Aldeburgh,' "in respect of the fishery." They are couched in the quaint language of the period, in each case referring to rights in dispute. One is an indenture between William Saunbrugge, Prior of the Priory of our Lady of Snape . . . on the one part, and Robert Cosard, John Benselyn, Robert Bayer, &c. . . . granteth by these present writings to the said Towne and Tenements that whereas they paid in the Old time ? for every boat . . . going to fishing for sperling [Smelts] in spurling time shall pay yearly for evermore to the said Pryor," &c.

Hele also gives a copy of an indenture :—"The counterparto of an Indenture between the Citye of London and Aldburgh that the Aldburgh men should pay no duties at London for unlading Her-rings Spratts Coals salt and other things.—Dated 1st Dec. 1608."

Reference must be made to a sporting pastime which in-

creases in interest year by year. I refer to sea-angling, which has become not only a means of recreation to hundreds of lovers of the rod, but of a source of revenue to professional men, who cater at the various seaside resorts for those who cast angle. There are men and boats always obtainable at Aldeburgh, Southwold, Lowestoft, Gorleston, and the villages along the coast. At Aldeburgh flat-fish swarm in the bay; and there is said to be "Lobster-catching on the Thorpe Rocks in the summer." Amateurs, for a consideration, can generally find a skipper willing to ship them even during the November "spratting." Sea-fish may be taken at Slaughden; and at night, I understand, "the beach [in late autumn] is illuminated by the lanterns of enthusiastic Isaac Waltons." Mr. Clarke, of Aldeburgh, states that shoals of fish are found from one hundred and thirty to three hundred yards from the shore, while, if the sea is too rough for fishing, the waters at the back of the town are available.

At Southwold equally interesting sport may be obtained under similar conditions, while the piers are favourite resorts. Lowestoft also offers favourable opportunities for sea-angling.

Mr. F. G. Robson, Master of Claremont Pier, Lowestoft, has kindly furnished me with the following statistics:—

SEASON FROM OCTOBER 6TH TO DECEMBER 5TH.

1905.		1906.	
Whiting	41,116	Whiting	71,029
Cod	2,225	Cod	787
Dabs	383	Dabs	206
Total	43,724	Total	72,022
1907.		1908.	
Whiting	27,502	Whiting	46,008
Cod	281	Cod	4,285
Dabs	1,382	Dabs	1,111
Total	29,165	Total	51,404

In an article to 'The Zoologist' (1901), on "Lowestoft Fish-wharf," the late Mr. T. Southwell, presented us with an entertaining view of that busy fish-market, detailing an interesting catalogue of species he met with during a few days' researches among the catches of the trawlers and drifters, concluding his paper by a frank admission that "it would not be

right to claim the fish we see landed here as belonging to our immediate neighbourhood. The steam-trawlers go far afield, but there are others which make their captures nearer home, and by the exercise of due caution a shrewd guess may be formed and often accurate information obtained as to the locality of their origin." He further regretted there was "nobody living there who takes an interest in the subject." I have shared that regret, and have often wished that there was some enthusiastic Suffolk ichthyologist competent to supply such a catalogue as would bear a fair comparison with the large list of those already known to have occurred in Norfolk waters.

Both at Aldeburgh and Southwold, as well as at Lowestoft and the fishing villages between, rare fish must occasionally be met with. It was quite by accident that, since I had penned the greater part of this paper, I fell in with Robert Wake's 'Southwold and its Vicinity' (1839). In this interesting volume there is a bare list of the marine species of that neighbourhood, with but two lines of introduction. He, however, concludes the list with a sort of footnote, remarking: "Besides the above, numberless nondescript small fish are occasionally taken in the trawl-nets." What an interesting array these "nondescripts" should make! Wake gives us a list of fifty-one species, from which two so-called species must be eliminated, and two allowed to remain with a ?. These will be noted in the list that follows.

Thanks to Mr. Southwell's paper for providing me with an incentive to research, my endeavours to draw up a *bona fide* list of respectable dimensions afforded me a most interesting series of flying visits to the chief fishing stations in East Suffolk. It has been my pleasure to verify species already recorded, and to add several hitherto unnoticed. I previously possessed a number of "records" of fish which had come into my hands, and there were a few, of rarer sorts, figuring in the lists included in the 'Transactions' of the Norfolk and Norwich Naturalists' Society, which were of service to me. I suppose I may term this an initial collective list of the East Suffolk species; I hope its publication will offer inducement to still further research. I may add that I consider greater credit is due to him who, already having had the ground prospected, fills up gaps (which I have certainly left) and adds fishes hitherto unrecorded.

The Freshwater Fishes of the East Suffolk district are necessarily few, and should be thoroughly "worked out" with ease; the Marine species, however, from the vast scope of the constantly moving salt tides, must always afford a chance of finding and identifying new-comers and stragglers, the uncertainty of whose advent, coupled with their probability, should always keep the investigator on the *qui vive*.

Fritton Lake, to which is attached Lound Run, lying midway between Yarmouth and Lowestoft, is a long, narrow, tree-embowered sheet of water, over two miles in length, nearly half a mile across at its widest part; its waters, in the hotter months, hold in suspension a vast amount of vegetable organisms, which give them a peasoup-like appearance. Shoals of large and very slimy Bream inhabit its depths, and form the greater part of the anglers' catches. Roach and Perch are abundant, as are Tench, and Crucian Carp, which, however, rarely take the hook. Pike are plentiful, but seldom trouble the angler in summer-time. This lake is exceedingly beautiful, and a great resort of Wild Duck, Wigeon, Tufted Duck, and others of the *Anatidæ*, great numbers of which are taken annually in the decoys.* Oulton Broad, a wide, clear, yacht-crowded expanse of water, contains about one hundred acres, and is joined to the Waveney by a "dyke" a mile and a half long, which the uninitiated fail to distinguish from the river itself. Perch-fishing was at one time a noted pastime here, the fish resorting to the vicinity of the lock for the sake of the Shrimps that abounded. Grey Mullet were at one time numerous in the neighbourhood of Oulton Broad and Lake Lothing at certain periods.

Than Mr. W. S. Everitt, a noted yachtsman and sportsman, whose estate borders on Oulton Broad, no one knows this beautiful lagoon better, he having lived in its vicinity for several decades. In the course of a chat with him on Aug. 17th last he greatly added to my interest in this favourite Broad. He could not tell me offhand as to its degrees of salinity, which is heavier than that of the Norfolk Broad, for a certain quantity of salt water constantly escapes into it through the lock which divides it from Lake Lothing. He assured me there were still a few small Rudd therein, and that the Perch are much smaller than of yore; that

* Cf. 'Nature in Eastern Norfolk,' pp. 54-57.

Carp, which never take a hook, and Tench also are found. On one occasion some ditches had been "fyed out," and the great accumulation of *Anacharis* and other weeds removed, when hundreds of very small Tench took up their quarters there, and grew most rapidly. He referred to the partial migration of Bream which at certain periods came to the Broad in shoals, returning to the rivers at other seasons—a subject well worth studying. The Mullet, that in the earlier half of the last century were abundant on the Oulton Broad in August, were now much scarcer, and came in May; they delighted in lukewarm water that was constant around certain works.

Mr. Everitt, in conjunction with some other sportsmen interested in game-fishes, near the end of the seventies turned down in various directions sundry "finger-length Rainbow Trout, Salmon (*Salmo salar*), and half-breds" from Bungay downwards, but they were never afterwards heard of, probably falling a prey to Eels, Pike, and other ichthyophagous creatures. Golden Tench, nine inches in length, were turned out into various ponds at Haveringham, Oulton, and Park's Hill. At the former places they did not thrive, the Herons no doubt finding them out. At the latter place they seem to have done well, growing to fourteen inches and scaling three pounds. There were also small ones discovered, which suggests multiplication.

Some "Looking-glass" Carp (*Cyprinus specularis*) were turned into a North Cove pond at a little later period, but did not prosper; Mr. Everitt thinks that the Otters, which he pronounced "still too common" (!), found them out and destroyed them.

I visited Lowestoft on July 22nd (1909), taking a ramble on my way around Oulton Broad and Lake Lothing, my principal objective being an inspection of the natural history specimens exhibited in the well-known 'Wherry Hotel' at Oulton. Herein I found a very interesting collection of birds, including a Purple Heron (*Ardea purpurea*), Spoonbill (*Platalea leucorodia*), Pallas's Sand Grouse (*Syrrhaptes paradoxus*), and others, all shot in the neighbourhood. Here also were numerous cases of preserved fishes, of rare or record celebrity, among them being a Bream (*Abramis brama*) of 6 $\frac{3}{4}$ lb. With it is cased a 2 $\frac{3}{4}$ lb. fish which I believed to be a hybrid Bream \times Roach. Both fish were taken on Aug. 13th, 1881. A Black Bass (*Centropristes*

atrarius) is exhibited as the only survivor (!) captured out of a consignment from Austria that had been deposited in local waters; the others, it is believed, were all devoured by the Oulton Pike. Tench, Rudd, and Dace are represented, and a Golden Tench of 2 lb. from a pond near Lowestoft. There are some fine Perch, taken from one catch, and a well-preserved plaster cast of a fine lot of Roach, which suggests Buckland. Host Horne believes that the falling-off in the numbers of fresh-water fishes in that locality is greatly due to the disturbance caused by motor and steam launches, which fling a turbulent wake into the reeds, beating the vitality out of the ova thereto attached. There would seem some truth in this theory.

On the edge of a small arm of Lake Lothing, cut off from the main Broad by a railway embankment, and probably scarcely so salt, although connected by a sluice, I found dead examples of *Gasterosteus aculeatus*, varieties of both the Rough-tailed and Quarter-armed Stickleback. These had probably been killed in sexual fights; they were males in good colour, but had been bitten, apparently by crustaceans. It was odd to see stretches of reeds and sedges forefronted by "Raw" (*Chætomorpha linum*) and "Cabbage" (*Ulcæ lactuca*), species of semi-marine plants so commonly found on Breydon mud-flats, in among which I saw *Idotea* and *Sphæromida*, which were lively and busy enough. In the basins of the outer harbour Atherines were abundant, and Herring-syle was flashing in the sunlit waters.

There are numerous ponds, mostly private, scattered about East Suffolk which I should like to have explored, as well as riverways, locks, &c. I visited the Waveney on Aug. 12th, in company with Mr. H. E. Hurrell, who is keen on Rotifera and Polyzoa, and from what I saw of the *life* teeming in its translucent depths, and in odd corners rank with water-plants, I sincerely envied those whose opportunities to study it were better than mine. The Waveney, the Blythe, and the Alde, with their circuitous meanderings and marshy connections, invite careful research; while further to the south-east of the county still more magnificent opportunities offer in the wide-spreading estuaries of the Deben, the Orwell, and the Stour, whose marine fauna should provide excellent lists.

To come back to the marine fishes of East Suffolk—there is

much to be done by careful observation ; draw-netter's catches are to be watched to some profit, whilst shrimpers and wolders and punters, who trawl and dredge in the shallows and deeps around the Corton, Newcome, and Barber Sands, the Holm, the Sizewell Bank, and Aldeburgh Napes and the Ridge—the “rough grounds” and the sandy stretches—meet with a great variety of *genera*, some of which, as the *Gobidæ*, the Blennies, and the flat-fishes, muster quite a number of individual species. As a case in point—on June 16th, 1906, during a walk along Southwold beach, on which I casually looked into the boats drawn up awaiting the morrow's tide, I recognized no fewer than eighteen species, among them the Pogge, Spotted and Thornback Rays, Tope, Picked Dog, Greater Weever, and a very beautiful fresh Pilchard.

To further augment the list, investigations should be carried on in winter as well as in summer, for during storms and severe weather curious fishes, as the Opah and the Ray's Bream, muddled among the sand-banks, might be washed ashore. Some of my rarest finds at Yarmouth, *e.g.* the Müller's Scopelus (*Maurolicus borealis*) and the above-named species, have been thus unceremoniously tumbled upon the beach. The good-fellowship and co-operation of fishermen should be enlisted ; there are ways of winning their help and sympathies besides an occasional screw of tobacco, and were they assured that a reasonable price attached to the bringing in of a strange although to them a worthless fish, it would soon find its way into the hands of a generous collector. The good offices of sea-anglers also are not to be despised, and even the urchins who loaf around quaysides may be made useful in adding to a naturalist's happiness.

The List of Species which follows is by no means a complete one ; there are many gaps, even among the commoner species, to be filled in—fish which I am certain are to be found, and have been, but, as I have not had proper verification, have been necessarily left out, to be discovered and added by any person having time as well as inclination to follow my lead.

The abbreviations are as follow :—Nor. N. S. means ‘Transactions’ of the Norfolk and Norwich Naturalists’ Society ; [], not indigenous or doubtful.

(To be continued.)

SOME SWISS BIRDS OBSERVED AT THE RHONE GLACIER, KLEINE SCHEIDEGG, AND MACOLIN, JURA BERNOISE, IN 1909.

BY REV. CHARLES W. BENSON, LL.D.

I HELD for some weeks in July and August, 1909, three chaplaincies in Switzerland:—

1. Rhone Glacier, 5742 ft. above sea-level.
2. Kleine Scheidegg, 6768 ft. above sea-level.
3. Macolin-over-Bienne, 2883 ft. above sea-level.

I venture to contribute some observations of the birds noted at these three stations, and also on the Grimsel Pass and the Furka, and up to a height of 8120 ft.

July 9th we left Meiringen in the diligence with five horses for Gletsch, the Rhone Glacier Hotel. When we had been out for about four hours we arrived at the Handeck Falls and Hotel, and were there told that further progress was impossible, as the Grimsel Pass was blocked with snow. We therefore reluctantly returned to Meiringen for the night. Next day we set out again, and were enabled providentially to get through, as rain had set in. But on the following day—Sunday—this changed to snow, and the Grimsel had seven feet deep of snow in it, and icicles, I was assured, at least one foot and a half long. The wires were all down, and even the iron rails fastened on stone posts on the road. Of course all communication was stopped, and travellers who came down by the Furka intending to pass over the Grimsel had to remain at the Rhone Glacier Hotel. The authorities told me that this was quite an unparalleled state of things in their experience—such a snowfall in July was a thing unheard-of before. Large numbers of soldiers with pioneers in front and many labourers set to work and opened the Pass for traffic by the Wednesday following. Before the great snowfall reached the valley, I noticed some Common Swifts and Wheatears not very far from the hotel, but they seemed to disappear

after the first day of the snowstorm, and I did not see them again.

My list for the Rhone Glacier Valley proper did not include more than half a dozen birds. Linnets and Redpolls were very numerous, Black Redstarts, Water Pipits, White Wagtails, and House-Martins were about all. When the weather moderated, however, and we were able to walk over the Grimsel and Furka roads, we added to the number. Wrens were very plentiful and in full song almost to about 7000 ft., and to my great surprise I heard Bonelli's Warbler and the Garden-Warbler at the same height. A few Alpine Choughs and Snow-Finches were also seen. Descending towards the Oberwald, 4316 ft., I observed the Wood-Warbler, the Whinchat, and many Goldcrests, and for the first time the House-Sparrow, though I had observed the Hedge-Sparrow on the Furka Strasse. A bird which I heard near the top of the Grimsel Pass was quite new to me, and I am very anxious to identify it if possible. The height was about 7000 ft., and the note of the bird, constantly repeated, sounded exactly like "Titchi, duck, duck."* There were evidently two birds answering each other, and in exactly the same phraseology. I never heard these notes before nor have I since, though on two occasions I revisited the spot, hoping to see and hear the utterers.

When I approached the spot where the birds were, they were immediately silent, but shortly after I saw on a rock some distance away, and one which I could not approach, a brown bird with pale breast, somewhat like a Garden-Warbler. I could not, however, be sure that this was the bird whose notes attracted me, though I think it was.

Near the Grimsel I also observed a Rock Thrush descending singing with uplifted wings close to the Todten See, "Lake of the Dead." I once had a similar experience on the Pilatus Kulm. Some distance above Grindelwald was the only place where I noted the Meadow-Pipit, and, at Interlaken only, the Serin Finch, but Chaffinches and Redpolls were extraordinarily numerous.

At the hotel on the top of the Furka Pass I found the House-Martins nesting, and circling at a great height in the air at an

* Mr. Warde Fowler suggests a Wheatear.

elevation of about 8000 ft., but nowhere did I find Swallows higher than about 3000 ft.

The Marmots in the Rhone Valley kept up their shrill whistling all day long, but it was difficult to sight them.

When we left the Rhone Glacier Hotel our next post was the Kleine Scheidegg, 6768 ft., and there I was led to expect many bird residents, such as "Blackcocks, Mountain Cocks (*sic*), Mountain Swallows," &c., but I could only find the following:—Crow, Redpoll, Black Redstart, Water-Pipit, and Siskin, or "Zeisig," as this little bird is called in Switzerland; but on the rocks over the Eiger Gletscher Station, 7620 ft., the first station on the wonderful Jungfrau Railway, there were many Alpine Choughs, and the air was filled with their shrill cries. I thought, also, that on one evening I saw one of the Ravens reported from the Lauberhorn circling round the station.

Redpolls were very numerous, and were to be found all along the descent from the Kleine Scheidegg to Grindelwald. On the Lauberhorn, 8120 ft., and the Männlichen, 7695 ft., there were no birds whatever.

My third chaplaincy was at Macolin-over-Bienne, Jura Bernoise, 2883 ft., a lovely spot with views embracing the distant Alps from Sentis to Mont Blanc, and there I noted thirty-two species; the most remarkable being the Common Buzzard, the Black Kite over the Lake of Bienne, and the Alpine Swift—numbers of these birds were circling round the Stadtkirche at Bienne; but I saw none at Berne, where, at one time, they were so numerous. Jays were also very plentiful in the pine-woods, and Willow-Warblers and Chiffchaffs were calling; Crested Tits were also common. I should think that in May this would be a splendid station for observing birds, as the woods are really magnificent, reaching down 1500 ft. and more to the lake below. It is easy also of access from England, being only about two hours from Bâle, whilst it can be reached even more speedily from Belfort.

On the whole, I noted fifty-two species in Switzerland, but I should probably have observed more were it not that my localities were for the first month at such high altitudes, and for the last in August, one of the most unfavourable months in the year for bird observation.

Macolin was reached from Bienne by a funiculaire in fifteen minutes, and at the station in Bienne Swallows had a nest near the roof, and the second brood were just beginning to fly as we were leaving at the end of August. Everything had been done to ensure their safety, perches and other conveniences had been provided, and the station was each year frequented by these birds.

In one year we were told that they built in the carriage itself which went up and down every hour about 1500 ft. to Macolin; they hatched out a brood going backwards and forwards with the car, and when the young were fairly well grown, allowed them to go up by themselves, and waited until they came down again to give them food.

NOTES AND QUERIES.

AVES.

The Whinchat at Wilsden.—*Pratincola rubetra* is not nearly so numerous as it was in the sixties in this district. Its scarcity, however, has been most marked within this last decade. Whether this may be due to natural or artificial or to both causes it would be difficult to say. The almost total disappearance of whin-covers from this neighbourhood may be one contributory, but cannot be the sole determining factor in the problem, since it is by no means confined to such places, but used to be quite at home nesting in our meadows, and next to the Titlark was the nest in which the Cuckoo used to deposit its egg; but I never once found the egg of the Cuckoo in the nest of this species that resembled the egg of the fosterer in the least degree, not even the type which approaches that of a Pied Wagtail. My only wish is that in the future it may yet return to our district in greater numbers to breed on our heathy wastes. Its well-known call-notes amid such associations, even now, awaken many pleasant memories.—E. P. BUTTERFIELD (Wilsden).

Marsh-Warbler in Bucks.—Two years ago I observed the nesting of the Marsh-Warbler at Thorpe, in Surrey, and recorded the same (Zool. 1908, p. 137), it being the first known instance of *Acrocephalus palustris* breeding in the county. Two nests were then found, the first with four eggs on June 14th, and a second nest on the 25th, also with four eggs. Last year I spent considerable time throughout the summer in trying to rediscover the birds around the same place, but was not successful, and I came to the conclusion that their occurrence was merely accidental. I was on the river on June 14th this year, and went ashore to inspect a very dense nettle-bed not very far away from the historic Magna Charta Island. Immediately on landing I found a Reed-Warbler's nest in an osier along the river front, which contained two eggs and one Cuckoo's. In proceeding to make my way through the tall dense nettles, I came suddenly upon the nest and two well-marked eggs of the Marsh-Warbler, and here also there was a Cuckoo's egg, though of a different type to the one I had just

previously found in the Reed-Warbler's nest. I was very surprised and pleased to again find the Marsh-Warbler breeding, and especially so at finding a Cuckoo's egg in the nest, for there are very few instances of its occurrence in England. The nest was placed some twelve yards back from the river on firm though damp ground; it was not more than eighteen inches from the ground, and was composed entirely of dry round bents, fairly substantially made, and having two live nettle-stems woven into the sides. The actual spot was in the parish of Wraysbury, in the county of Bucks (Wyrardisbury, as it used to be called), and is not more than five miles from the Surrey plantation where I met the birds in 1907. I informed my friend Mr. Edward Pettitt, of Wraysbury, of my find, and, as he is interested in ornithology, asked him to let me have any further news of the birds. On June 30th he succeeded in finding another nest in the same nettle-bed, and within a yard or two of my previous nest; this nest contained four Marsh-Warbler's eggs and one Cuckoo's, the latter being of a third type—that is to say, quite distinct from either the egg I found in my Marsh-Warbler's nest or in the Reed-Warbler's. This second nest was again built of dry bents and placed about eighteen inches from the ground, and had two pieces of dead loosestrife and two live nettles woven into the sides. It may be that the Marsh-Warbler is attempting to establish itself along this part of the Thames, but more evidence is required before one can form an opinion on this point. I may say, however, that previous to 1907 I had never met the bird in these parts, though I had worked along the river for many years, and always hoped to meet it one day.—GRAHAM W. KERR (Ditton Lodge, Datchet).

Raven in Surrey.—On the 12th September last I both heard and saw a Raven (*Corvus corax*) flying overhead here. The peculiar croaking sound was unmistakable. I believe this bird has not been previously, or at all events for many years, recorded in Surrey.—N. P. FENWICK, JUN. (The Gables, Esher, Surrey).

Cormorant in Warwickshire.—Replying to Mr. Smalley's suggestion (*ante*, p. 350), the bird I recorded (*ante*, p. 315) was of course, as I stated, a Cormorant and not a Shag. The Common Cormorant varies considerably in size, but the usual length seems to be about 36 in.; wing from 12·5 in. to 14·00 in. The bird I referred to was a small, young example, and thin. Its wing was 13 in.—O. V. APLIN (Bloxham, Oxon).

Nordmann's Pratincole in Yorkshire.—A specimen of Nordmann's Pratincole (*Glareola melanoptera*) was shot at Reedholme, near Danby Wiske, on August 17th. It was flying with a flock of Green Plover at the time. — R. FORTUNE (5, Grosvenor Terrace, East Parade, Harrogate).

Machetes pugnax in Co. Mayo.—It may interest some readers of 'The Zoologist' to know that a Reeve was shot by Mr. H. Knox, of Greenwood Park, on August 30th last near Daleybann Lough, Bellacorick, Co. Mayo. This is only the fourth specimen that I know of shot in this western district, all being solitary birds shot during the autumn migration.—ROBERT WARREN (Moy View, Ballina).

NOTICES OF NEW BOOKS.

The Kea: a New Zealand Problem. By GEORGE R. MARRINER, F.R.M.S. Williams & Norgate.

APART from the ornithological point of view little can be said in favour of this bird; to the sheep-farmers it is too frequently a cause of heavy loss, to the sheep themselves it is a cruel and fatal vivisector. It has, however, been said—and Dr. Wallace in his 'Darwinism' largely popularised the idea—that the bird actually burrows into the living sheep, eating its way down to the kidney, which forms its special delicacy, an erroneous statement and unnecessary, for the Kea's record is black enough without this suggestion.

Mr. Marriner has written an excellent and exhaustive life-history of this destructive bird, and clearly proves, apart from the kidney myth, that if extermination at the hands of the sheep-farmers eventually ensues it will have earned its fate, though it is probable that it will survive in greatly diminished number rather than be added to the list of extinct birds. It inhabits the alpine regions of New Zealand, where the severity of the winter is especially felt, and "builds its nest, lays its eggs, hatches and rears its young, all during the severest months of the winter." It appears that all Keas do not kill or even

attack sheep; "usually one or two old birds, known as 'sheep-killers,' do the killing, and the others share the spoil"; neither do the Keas "choose the lambs or weaklings, but in most cases the choicest of the flocks is killed." Their depredations may be estimated by the complaint of one sufferer: "One year I had a bad muster; four hundred woolly sheep came in at the beginning of winter, when the snow fell and the sheep could not get away. I placed them, as I thought, in a safe position, on the hillside close to where I lived. In spring, when I went to have a look at them, the Keas had killed about two hundred of them." It is not surprising to read that a price has been put upon the heads of these marauders, usually 2s. 6d., though sometimes as much as 10s. We may feel a certain amount of pity for the destruction of birds who poach over our agricultural lands and orchards, but for the Kea, who puts the sheep to a particularly cruel and lingering death there need be little clemency. There will never be perfect peace between man and other animals; the most humane and tender-hearted florist would gladly sign a decree for the utter extermination of slugs by the most efficacious means. Some teachings of Socialism, the right to live with the right to share, fortunately fail with the treatment of the Slug and the Kea.

There can be little doubt that the Kea has, comparatively speaking, recently acquired its carnivorous propensities, and the different theories proposed to account for this change in habits are fully discussed by the author, who has successfully shown how a small volume can be written on a single bird, readable from beginning to end and containing all we want to know. The pages are well and fully illustrated.

Correction.—The publishers of 'The Wild Beasts of the World,' reviewed in our last issue (*ante*, p. 358), are T. C. & E. C. Jack, and not T. C. & E. C. Black, as printed.

